

When in Coorg, in two different years, during the months of January and February, we not unfrequently drove up to Mercara, the capital, a distance of ten miles from the place where we were staying. On the way thither we saw some trees in their winter condition with perfectly bare branches, others had the tender foliage of spring, some again were in all their summer glory, and some were clothed with the most brilliant autumnal tints; this was most probably due to the great variety in the species of trees in that district.

COSMOPOLITAN

A Tracing Paper Screen

As several inquiries have been made of me as to where the proper tracing paper can be obtained, perhaps I may be allowed to state that I got mine through Mr. George Smith, 26, Colebrooke Row, City Road, N., who was the first, I believe, to recommend the use of this valuable material.

CHARLES J. TAYLOR

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GEOFFREY NEVILL

WE have to announce the comparatively early death of Mr. G. Nevill, which took place at Davos Platz, after a long and lingering illness, on February 10. This removes from among us another of the scanty band of English conchologists, whose ranks, only a few days before, suffered a similar loss in Mr. J. Gwyn Jeffreys. Mr. Nevill's labours have been principally confined to India, where he was for many years one of the assistant-superintendents under Dr. J. Anderson in the Indian Museum, Calcutta; his work is, therefore, better known to those who have collected in the East and written on the molluscan fauna of that part of the world. For many years he was a constant correspondent and colleague of the writer's, who can testify to the large and varied knowledge Mr. Nevill possessed of the different forms. A very large number of species were sent him by Mr. Nevill from time to time, many of which still remain to be described. Mr. Nevill was the author of many papers on his favourite study, most of which are to be found in the *Journal of the Asiatic Society of Bengal*; but perhaps his best and most useful work, particularly to those interested in distribution, was the "Hand List of Mollusca in the Indian Museum" (Part I. comprising the Pulmonata and Prosobranchia-Neurobranchia published in December, 1878, and is remarkable for the accuracy with which the localities of the different species is given, and the collections from whence they were received. He also catalogued the Ampullariacea and Valvatidae and Paludinidae). Unfortunately, the whole catalogue of the Gastropoda is incomplete, for his health failed him altogether in 1881. Yet he struggled on to the last with his task, even when unable to leave his room to go as usual to his office in the Museum, and was compelled eventually to give up his appointment and return to Europe. The entire arrangement of the Mollusca in the new Museum formed a part of his work when there, and it was well and admirably done. Almost his last work in the field was at Mentone, in 1878-79, where, in the post-Tertiary beds, he made a careful collection of the shells, particularly the smaller species, a list of which he published in the *Zoological Society's Proceedings*. Yet even so late as last summer, when hardly able to move from weakness and partial paralysis, he was getting together the land-shells to be obtained in the country around the Lago de Como.

Geoffrey Nevill was born at Holloway on October 5, 1843; he was the second son of Mr. Wm. Nevill, F.G.S., who resided for many years at Langham Cottage, Godalming, a gentleman who made mineralogy his study, and whose collection of meteorites was well known. As is often the case, his son inherited kindred tastes, for, when quite a boy, his attention was directed to shell-collecting both in Germany and in England. Most

of the English species in the Calcutta Museum originally formed a part of this collection, and bear labels from near his early home at Godalming. He received his education at Dr. H. D. Heatley's school at Brighton, and afterwards spent some time at Bonn in the house of Dr. F. H. Troschel, Professor of Zoology, and this no doubt confirmed his early taste for natural history and directed his future career.

He was never strong, so, after entering into mercantile life in his father's house, and his health breaking down, he was ordered abroad, and he proceeded to the Cape, the Mauritius, and Bourbon, where he collected largely, and formed a valuable and rich collection. Some of the results were described in joint papers by himself and his brother, Hugh Nevill, of the Ceylon Civil Service. He went on to the Seychelles Islands in 1868, where he remained some time, still further enriching his collection, and then went on to Calcutta. At this time an appointment offered itself in the New Museum, which he took and filled for many years. Here in Calcutta during this period a little band of workers in conchology were drawn together, most of whom were employed on the different surveys of the country. Season after season, on return from the field, the results of their labours in every part of India accumulated and were examined. Ferd. Stoliczka, one of the first to be removed, was one of the most ardent workers, and all benefited from his deep, more advanced knowledge of the subject.

The survivors will recall those pleasant intellectual gatherings when they hear of Geoffrey Nevill's death, and future students and collectors of Indian Mollusca will appreciate the work he lived to perform, and which will render their work in the galleries of the museum in Calcutta more easy.

REPORT OF THE COMMISSIONER OF EDUCATION IN THE UNITED STATES FOR THE YEAR 1882-83¹

IT is impossible to read the account which the United States Bureau of Education, in the opening pages of this Report for 1882-83, gives of itself and of its labours, without being convinced of the value of the matter therein contained. A total of over 10,000 institutions of education of various kinds are in correspondence with, and supply information to, the department. An idea of the work also which falls to it may be formed from the fact that some questions addressed to it have necessitated months of research by several clerks, while the labour which its publications have entailed, as well as the value placed upon them, are shown by the fact that one of them was *asked for* by 10,000 persons of different addresses. Since all is voluntary, the Bureau claims to work the most complete system of the kind in existence. The wide compass of its survey is indicated by the very full account given, among other foreign intelligence, of the Report of the English Commission on Technical Education. Besides itself circulating through the world 20,000 copies of its Report, the office is required to print 18,000 copies more for the use of, and distribution by, other members of the Government. Its library—where all the items of information which it is possible to collect, down to cuttings from newspapers, are gathered together and classified—is an immense work; and we can well believe that, "if this office were put in possession of a small sum annually for the purpose, it would make effective and useful displays at exhibitions, of American education . . . the most unique feature of our national life."

The report of this education generally is far more satisfactory than in other years. There has been a general increase, first in the number of scholars, even in Maine where the population has become smaller, and in New Jersey, New Hampshire, Connecticut, South Carolina,

¹ Washington Government Printing Office, 1884.

and Kansas, where schools have become fewer. Though the contrary might have been expected in an increasing country, a great complaint of the Report is the multitude of small schools which require consolidating for the sake of employing better teachers and apparatus. The suggestion is made that each State should fix a minimum of salary to be paid to any teacher; this not only must be good for the children, but would of itself urge forward the consolidation, where distance allowed it, of small schools of less than ten or twelve scholars.

In Rhode Island, and in city schools generally, the competition of factorics is lamented. The deficient average attendance is imputed to the demand for cheap labour; and obligatory laws are quoted, among other things, as an antidote. It should not be forgotten that the inexorable enforcement of those laws is what is in reality the greatest kindness to poor families; for if the cheap labour of young untaught children once enters the market in the smallest quantities, it becomes impossible to gain a fair price for the work of those older and better taught. But, protected from all such unfair competition, the child's education becomes a common necessity. No doubt the difficulty is much felt in Alabama, North Carolina, Louisiana, and Mississippi, the only States whose reports are generally unsatisfactory: States where negro labour keeps down the wages of white children.

There has been an increase, again, in the number of teachers: with regard to which it is interesting to note that in three States the number of men has fallen off, while in them, and even in frontier States, that of women has increased; and an increase also in the item of teachers' salaries; even in Illinois with fewer of them, in Indiana, where the population has decreased, and in Michigan, where in past years the amount had fallen off.

The variation in different States of the expenditure on education, however, is still exemplified in the fact that Massachusetts pays fifteen times the amount per head that Alabama pays!

The educationists of Kentucky, where whites and blacks are treated alike with regard to schooling, appeal to the Peabody Trustees for advice to the Legislature. This latter body, who are gaining an influence like that of our Charity Commission, have concentrated their money upon training teachers, with successful effect over school work in the south. Another benefactor has bequeathed over 700,000 dollars to the whites of New Orleans for educational purposes.

The improvement in the organisation of systems, the greater efficiency of work, and the deeper interest felt by the people, is indicated by the public schools in some States superseding the private ones; and Gen. Eaton attributes to the influence of the superintendents (officers whom we have before quoted as combining the knowledge of our inspector with the zeal of our chairman of School Board) the two most promising general movements now going on, viz. the increase of local taxes for education in the Southern States, and the effort to abolish small independent, irresponsible districts in the older Northern States.

Still, nothing can be more depressing than that, in a community naturally the leading people of the world, a sober report of a patriotic commissioner should still find it necessary to say more than once in his Report, that a work so all-important to the future of that community as education should be marred by school commissioners persisting to license the cheapest teachers they can procure, and using the license as a means of favouring relations, political supporters, and such like; thus rendering useless the efforts of examining bodies, who have pointed out the really competent persons for this most responsible office.

We have no need to enlarge again here upon the United States difficulty, the education of the negro. The burning question of course is, Who is to pay for it? The

Report speaks confidently of securing national aid, the need of which has been so strongly urged before. One gentleman gave 1,000,000 dollars towards the work, but religious denominations have so far been the great supporters of black education.

We, in England, can better enter into the labours of those who are trying to raise the street Arabs to a generally higher level. Few things ought so much to convince anxious reformers how little their improvements depend upon the form of government, as to see how the struggle of the poorest for existence is as sharp and demoralising in the large towns of the United States as it is in England. One of the leaders of the Kindergarten system lays it down that "the best energies of the faithful teacher are often required when the work of the schoolroom is over. There is much visitation to be done to look up absent children, and, where sickness invades, the teacher is often called upon to supply medical aid and other necessary help; and, where death ensues, there is sometimes no one but the Kindergarten helpers to see the little one decently buried;" and, in fact, not only to take all the duties and responsibilities off the hands of parents, but to provide an antidote to their mischievous example and teaching. Their success in many cases must lead its supporters on to the venerable yet now radical proposition, which will be most offensive to Mr. Herbert Spencer, that education from infancy should be the work of the State; and, strange as such a suggestion must seem among English homes, it is very much in harmony with modern division of labour which makes the parent less able to educate, in the full meaning of the word, a family, and the professional Kindergartens so much more so. And the same principle is to be traced in the recommendation that homes, as well as training-schools, should be found for nurses.

Both in primary and secondary schools witness is borne to the improved teaching. The importance to the former of the example of good teaching to be found in the normal schools, as well as the precept on the subject, is fully insisted upon; a difficulty often met with being the work of correcting bad teaching in the lower schools: while, on the other hand, the multiplication of teachers well trained in public normal schools is, as we have said, urged as the surest, and, in the long run, the most economical means of raising the standard of education throughout the country.

Examinations like our Oxford and Cambridge Locals, held by the regents of New York, are leading to greater uniformity in the teaching of the second-grade schools.

Perhaps the most striking thing in the Report is the important part which women are now taking in study, as well as in teaching, in the United States. The demands and attractiveness of commercial life to the young men of America, with the energy and self-reliance of its women, are leading to the result that the latter are becoming the learned class there. We have already remarked upon the large and increasing proportion of female teachers in all the elementary schools. But, moreover, while twice the number of women begin a high school course, three times as many women as men complete the fourth year. Although the increase is not large this year, there are over 40,400 women in institutions of superior instruction. At Purdue University, where practical mechanics is taught, a number of young ladies have been among the special students, and "have done the same work as the young men, and, though progressing much slower, have been nearly as successful." Educated women are now also the leaders of many philanthropic movements.

The education of the blind and the feeble-minded is urged as a matter of public economy, their cost if left uncared for amounting to much more. The same considerations have many times been urged in favour of reform schools. But they are all attempts to counteract laws of nature that all these diseased specimens shall be inexor-

ably extirpated, and it is hard to see a satisfactory result of these efforts in the long run. A singular mischief has recently been commented upon by Prof. Graham Bell (see NATURE, No. 795), arising from the system of teaching deaf-mutes a language and literature, intelligible among themselves, but not familiar to the general public. Hence they prefer their own society, and are trying to form deaf-mute settlements which must result in hereditary transmission to the whole community of this terrible degeneracy. It will be a curious experiment if allowed to take its course.

A most healthy sign of the times is that the increase of students at the schools of science is far larger than the increase in the number of establishments. It shows a general appreciation of their work, and in an enterprising country like America will soon bring about an increase in the number of schools. Institutions are becoming more general which undertake to train students for the higher schools of science. The cost of laboratories and apparatus and the scarcity of teachers are two of their difficulties, indicating at the same time the high standard of work they aim at. We note with pleasure that the sole purpose of the Wisconsin Agricultural Experiment Station is the discovery of new truths and laws which may be of benefit to agriculture, and farming is taught there as a scientific pursuit. In the Storrs Agricultural School at Mansfield, Conn., though of less ambitious character, "students receive instruction both in the class-room and on the farm. In the class-room they study those branches of natural science which have a directly useful bearing on New England farming, such as general and agricultural chemistry, natural philosophy, farm mechanics, surveying, botany, zoology, geology, animal physiology, mineralogy, and theoretical agriculture, stock-breeding, and composition. The general principles of these sciences are taken up first, and afterwards their special applications to practical agriculture, which includes the improvement of the soil by tillage, draining, manuring, and irrigation; the culture and handling of the various field, garden, and orchard crops of New England—grass, grain, roots, vegetables, and fruits—from planting to market; the use, care, and repair of farming tools, implements, and machines; the breeding, rearing, training, and feeding and use of live stock; the best methods of dairying, the business and management of the farm in all its details. . . . The intellect being called into play, farm work is divested of its monotony and robbed of the repressive influence derived from it when viewed as mere physical labour."

It is well urged in favour of an institution like the St. Louis Manual Training School, that through the minute division of labour which necessarily attends our increased machinery, the old method of teaching a trade is rapidly and inevitably disappearing; that it is only at a technical school that the *toute ensemble* of a trade can be learned so as to be intelligently carried on and fresh inventions led to; that there is an idea afloat that it requires no education to be a mechanic, and hence the despising of both craft and craftsman, whereas the thorough understanding of both theory and practice of a skilled industry makes its owner "the peer of the statesman; and from the union of his head- and hand-work come a large part of the civilising agencies of the nineteenth century."

The English Commissioner on Technical Education reports on the efficiency of the American workman, which is mainly attributed, by all who have inquired into the subject, to the primary education acquired by them during a prolonged attendance at school, and now the idea is to be traced through all the Report upon the subject, that to teach the pupil his trade should henceforth be the work of a school; as much one part of education as the three R's the other part.

And not the work of a primary school only, but it is even urged that it should be the work of the Universities to send forth young men, fitted by technical training to

lead in the development of the State; its fields, mines, quarries; its railroads and water-power; its manufactures and commerce." And already at Cornell University, as well as at Massachusetts Institute of Technology, electrical engineering is taught sufficiently extensive to prepare a man for ordinary electric work or advanced study. To Terre Haute, Ind., a small town of 26,000 inhabitants, the splendid legacy of a property bringing in 25,000 dollars a year was left for a technical school, in the starting of which great care as well as energy have been shown.

Very different, however, from these buoyant views is the record to be found also in this Report, that in Austria the higher schools for technical instruction have been decreasing for the last few years.

Nor again is science only, but art also in its more marketable shapes is becoming rapidly the work of schools. A public art school, under the direction of Mr. C. G. Leland, has been trying an experiment as to what children, nine-tenths of them from thirteen to fifteen years of age, could do in the way of art manufactures by being taught designing and art processes. Besides developing inborn talent, this school not only finds a commercial value in their productions, but insists upon what is becoming generally observed, that technical teaching, though shortening school hours for other work, by no means reduces the amount of progress made in the latter, brighter wit and interest being excited by hand-work at intervals with head-work. Elsewhere in the Report a protest is quoted from Harvard University which will be re-echoed from the breast of many an English *paterfamilias*, against athletic sports being made too much a business or profession, instead of a recreation. Besides the waste of time which, it is urged, might be given to other things, such a standard of excellence as the few attain makes the game very exclusive and confined to a small number. Of course we know the reply often made to this, viz. that the best players are also the best workers; but do not these simultaneous experiences strongly suggest that some technical art might take the place of a dangerous game, thus infusing intelligence into the former, and providing the student with a means of competency in case of reverses? Many arts are more intellectual and less laborious than football or agriculture as carried on at Rugby, England, or Rugby, Tennessee.

The unsatisfactory condition of the medical profession in the United States, which has been remarked upon in previous reports, is in this one traced back to the thinness of population a century ago; a population also of vigorous physique occupied in clearing and settling an enormous territory, and free from most of the diseases that afflict humanity of lower vitality, and under less favourable circumstances. The early colonial physician often combined other functions with those of healing: sometimes he was a minister of the Gospel, sometimes a farmer, a shopkeeper, or a mechanic. The bulk of the profession at the beginning of the century, and for many years afterwards, did not possess any medical degree. The result followed that men of natural boldness revolted against the frequent ignorance and numerous errors of such physicians, and became followers and advocates of special medical doctrines, and supported the "botanic" school of practice, that of Hahnemann—hydropathy, physiopathy, vitopathy, electropathy, or other "medical heresies." Degrees have been too easily obtainable through numerous schools competing for popularity, and offering them for little money and less work, with the natural result of their being little valued. The Report, therefore, after going largely into the subject, and deprecating the present state of things, urges fewer schools and higher degrees, which will be worth jealously guarding, to be given by State-appointed examiners only, on the attainment of a much higher standard. Since we are told that ten colleges have agreed upon a uniform entrance examination to the great help of masters pre-

paring boys for their studies, it may be hoped that a more general union may be arrived at with regard to this standard.

Free libraries are still progressing, and so interesting are the statistics of these "universities of the people" in the United States, that Gen. Eaton promises a special publication on the subject, reprinting such parts of the great Report of 1877 as have permanent value. Several magnificent bequests and donations of books to large libraries show how naturally large private collections will gravitate to the free public library, where the locality is happily provided with one. One such, that of Dr. Toner's, containing 27,000 books and 12,000 pamphlets, was thus bequeathed to the Library of Congress. This latter institution, at the end of 1882, already contained 480,076 volumes and 160,000 pamphlets, and the forthcoming plan of a new building to keep in utilising order this rapidly growing mass is intended to embody the best appliances, arrangements, and ideas about library construction which such enormous accumulations render indispensable. An excellent precaution also against knowledge being locked up in over-large supplies of literature is taken at Chicago, where Dr. Poole, the great cataloguer, receives schools or teachers on a Saturday, surrounded by all the books of the library bearing upon some matter. By showing how interesting that subject is as a department of human thought and industry, and how much the contents of the library may help the student to a knowledge of such a subject, he has succeeded in producing a profound beneficial effect upon the upper grades of the school system. W. ODELL

BIRDS BREEDING IN ANTS' NESTS

THE following communication to Mr. Grant Duff, Governor of Madras, has been forwarded to us for publication by Sir John Lubbock:—

To Major Awdry, Private Secretary to His Excellency the Governor of Madras

OOTY, January 18, 1885

SIR,—I beg to acknowledge your letter of yesterday's date.

The Southern Chestnut Woodpecker (*Micropternus gularis*), always, as far as I have observed, uses an ants' nest to nest in, and Mr. Gammie, the Superintendent of the Government Cinchona Estates at Mongphoo, near Darjeeling, has noticed the same thing with regard to the allied northern species, *Micropternus phaloceps*, and the peculiarity probably extends also to the allied species found in Burmah, Siam, &c.

Mr. Gammie thinks that when an ants' nest has been taken possession of by the bird that the ants desert the nest. This is a point on which I cannot speak with certainty. Mr. Gammie has taken nests of the northern species in which, although the bird had laid, the ants remained, and he has taken other nests where not a single ant remained; but there is nothing to show that these nests were not deserted before the bird took possession. I myself have taken nests of the southern form, in which, though the eggs were partially incubated, the ants remained, showing that some considerable time must have elapsed since the bird took possession. This is a point that I hope to be able to elucidate within the next few months, when the birds will be breeding.

When *Micropternus* is breeding the feathers of the head, tail, and primaries of the wings get covered with a viscid matter, having a strong resinous smell, and this substance is usually rather thickly studded with dead ants (*vide* "Stray Feathers," vol. vi. p. 145).

Two species of kingfishers also to my knowledge nidificate in ants' nests—viz. *Halcyon occipitalis*, confined to the Nicobar Islands, and *H. chloris*, which ranges from India as far south as Sumatra.

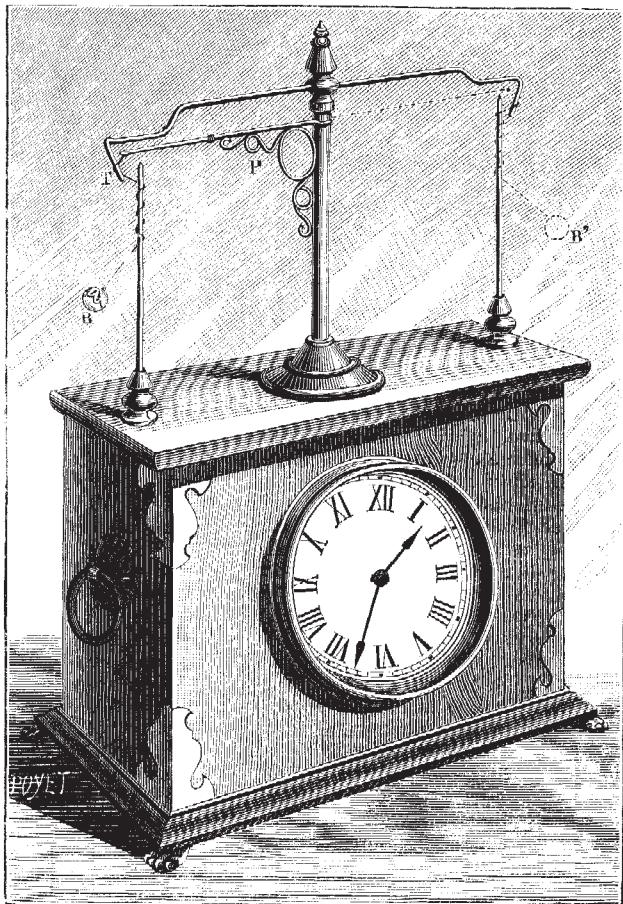
At Mergui, in South Tenasserim, I found a nest of *H. chloris* in a hornets' nest, and although I saw the birds repeatedly enter the hole they had made in the hornets' nest the hornets did not seem to mind it, but they resented in a very decided manner my attempt to interfere with the nest.

I am sorry I cannot give His Excellency more certain information as regards the desertion or otherwise of the ants from their nest after the birds have taken possession of it, but I hope to be able to finally settle the question shortly.

I am, Sir, yours obediently,
(Signed) WM. DAVISON

A NEW AMERICAN CLOCK

THE accompanying figure from *La Nature* illustrates a new American clock of ingenious construction. It is distinguished from all other clocks by the singular and original form of its pendulum: or rather of the system which serves to maintain a synchronism more or less perfect between the passage of time and the indications on the dial. The arrangement of this clock is based on



the principle of torsion. It has to be wound up daily, and the phase of the pendulum—that is to say, the time which elapses between two identical positions of the regulating system—is six seconds. The general mechanism does not differ from that of ordinary clocks; we find the main spring and other usual parts, and a train of wheels giving rotation to a vertical axis which is seen over the case and the rate of motion of which is to be regulated.